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Original article

The geography of yam cultivation in southern Nigeria: Exploring its social meanings and cultural functions

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ABSTRACT

Background: Yam (*Dioscorea* spp.) is a very important common food crop in West Africa. Beyond its food and nutritious values, the ownership and cultivation of yam have many cultural, religious, and social meanings, which may vary between specific ethnic groups and regional areas. This study explored the diverse social, cultural, and religious perspectives associated with yam and its cultivation in southeastern Nigeria.

Methods: We used a comparative approach and utilized in-depth, semistructured interviews, local narratives, and our experiential background to understand the similarities and differences in the local notions of yam and their impacts on the general societal structure across three ethnic regions in southeastern Nigeria. We discussed the findings on a thematic basis to reflect the social and cultural issues associated with the ownership and cultivation of yam. The themes ranged from religious practices, impact on social status, and gender relations.

Results: We found no significant differences in the incidence of local perceptions and practices between the study areas.

Conclusion: This study has demonstrated the importance and functions of yam crop in structuring the social, economic, religious and cultural fabric of the society.

1. Introduction

Yam (*Dioscorea* spp.) is one of the most important food crops in tropical climates, especially in areas with moderate rainfall. The cultivation of yam complements food security [1]. Yam is a major source of calories for millions of the world's tropical and subtropical populations [2] and provides some nutritional benefits in the form of protein and micronutrients [3], while contributing to shaping the cultural fabric and social relations of most African societies [4,5].

Yam is a multispecies (approximately 600 species) tuber crop grown in Africa, Asia, parts of South America, the Caribbean, and South Pacific islands [3]. The Guinea yam, which consists of white yam (*Dioscorea rotundata*) and yellow yam (*Dioscorea cayenensis*), (Fig. 1) is considered indigenous and most important to the people of West Africa (except for the inhabitants of the Cóte d'Ivore, who consider *Dioscorea alata* [an Asian species] more important). Available literature on Guinea yams shows the phenomenon of "ennoblement," which seems to achieve domestication in the region [6,7]. This drive is influenced by anthropogenic pressures where individual plants from the wild population are favored over others. Table 1 gives an overview of the species that have made a significant contribution to the domestication and selection process in West Africa. Over time, this systemic selection modifies the genetic equilibrium of the wild yam populations and gradually gives them cultigen features [8].

Yam-based agriculture was practiced independently but simultaneously in West Africa approximately 5000 BC. Cultural interactions took place between preagricultural or protoagricultural peoples, who were already exploiting wild yams for food—probably with some degree of ritual protection of the plants—and by nearby Neolithic grain-using agriculturalists [9]. Yam farming antedates the historic period on the West Coast of Africa with early Iberian explorer, Pacheco Pereira, who in 1505 mentioned the existence of established trade between Bonny in the east Niger delta and yam growing areas in the hinterland at the time of his visits to

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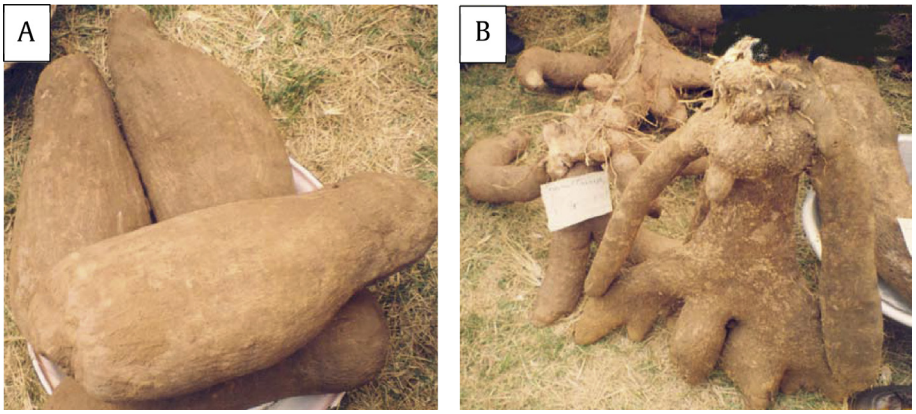

Fig. 1. Freshly harvested *D. rotundata* (a) and *D. cayenensis* (b).

Table 1
Overview of yam species of significant contribution to the domestication process in Nigeria.

Yam structure	Yam species	Ecology
Primary spp/cultivated yams	*Dioscorea rotundata* Poir *Dioscorea cayenensis* Lam.	Rainforest and savanah Rainforest
Secondary spp.	*Dioscorea bulbifera* L. *Dioscorea preussii* Pax *Dioscorea praehensilis* Benth *Dioscorea sansibarensis* Pax *Dioscorea dumetorum* (Knuth) Pax. Dioscorea abyssinica Hochst. ex Kunth	Rainforest Rainforest Rainforest Rainforest Rainforest Savanah

Nigeria [10]. Yam domestication occurred along an axis at the forest–savannah ecotone in the eastern part of West Africa [10], where Nigeria is geographically. Nigeria is reputed to have the most advanced yam culture and civilization in the world [11].

There is geographically wide-scale domestication, cultivation, and use of yam across the western, eastern, southern, and middle regions of Nigeria, especially among the Yorubas, Igbos, Ibibios, Efiks, Tivs and other smaller ethnic groups. These ethnic groups are geographically between the southern Guinea savannah and humid forest [3]. Recent estimates of the Food and Agriculture Organization of the United Nations (FAO) indicate that Nigeria is the leading producer of yams, and contributes approximately 66% to the global production [12]. Beyond its economic and nutritional values, the ownership and cultivation of yam has several cultural and social meanings to specific ethnic groups [13]. This comparative study on the perspectives and implications of such meanings, values, and practices is expected to contribute to deepening the knowledge on the structure and evolution of social relations in southern Nigeria. In addition, information on yam sociological environment needs to be compiled within the context of threat and disappearance to traditional knowledge. We are of the opinion that information generated from this study will be of immense value to ethnobotanists and more generally to personnel specializing in the domains of human sciences, agriculture, and ecology.

We divided this paper into the following sections. After the Introduction, the second section discusses the broader theoretical issues on cropping and social relations. These theoretical reviews serve as a major guide to our empirical analysis and discussions. Sections three and four discuss the geography of southeastern Nigeria and the study methods, respectively. The Results section is split into subsections with regard to the various aspects and meanings associated with yam ownership, cropping/cultivation, and the broader social and cultural implications. The results section is followed by a general discussion on the findings. The final section contains the concluding remarks.

1.1. Yam: social meaning and cultural function

Crop types and their cultivation practices can reveal many cultural issues on values, social relations, and the economic conduct of specific societies. Studies [14] on these issues are subsumed under the wider agricultural development and production practices, which provide avenues for understanding how issues of rights, access, ownership, and cultivation of specific crops are negotiated. In some societies, men and women hold different rights of production, labor, ownership, access, and marketing of specific crop types [15–18]. Designating specific crops for specific gender category has the capacity to produce differential effects in productivity, vulnerability to shock, and income generation prospects. Feminist discourse has made a significant contribution to the literature by making generalized and context-specific claims of differential experiences and impacts between men and women of specific crop types and their cultivation practices [19,20,17,21,22].

In general, the notion that different social, cultural, and environmental contexts have different roles in the decision of who should own, access, or market what specific crops has the potential to unravel the diversity in practices and power relations shaping cropping agriculture in Africa. The processes for cultivating certain crops involve critical input factors such as the need for physical strength for labor, application of knowledge and technology, and economic and financial investments. Different societies respond differently, depending on cultural beliefs and other local contexts. These practically justify the assignment of roles, labor, investments, and rights of ownership and disposal, depending on the prevailing norms of social relations and cultural beliefs.

In specific reference to yam, several studies have documented its importance in West Africa as a staple food source (Fig. 2), and its usefulness in several other social and cultural functions [4,5,13,23,24]. Yam represents the major agricultural crop in West African societies. Its ownership and cultivation is mostly linked to gender and class, which emphasizes “male achievement” and “social prestige.” Among Nigeria’s Igbo ethnic groups, yam is the most

Fig. 2. Diverse food forms from yam (*D. rotundata* and *D. cayenensis*).

favorite food, and has a purpose in social functions such as marriage, burials and other traditional ceremonies and rituals [25]. The processes for cultivating yam have been variously described as "exacting" and labor-demanding [24]. Korieh [4] quoted Basden on the complex processes for cultivating yam, as follows:

> "Successful yam cultivation requires a distinct method of earthling up the soil and this fact rather points to the improbability of any great agricultural reforms being introduced so long as yam growing is paramount industry. Ploughing would not answer even were it possible … it seems highly probable that the primitive hoe will never be displaced from yam farming purposes and there is no doubt that the implements are peculiarly suitable and very effective in the hands of the native. (Korieh, p. 225)"

These rather tedious, complicated, and exacting processes reinforces the collective value of yam as a social, economic, and cultural crop for the serious-minded and strong members of the society, and as a traditional symbol of social status and authority. Achebe's 1958 novel, *Things Fall Apart*, devoted much time to yam and attests to the reverence and socioeconomic value that the Igbo, rich or poor, attach to yam [24]. Achebe depicts the visit of Okonkwo (the principal character) to Nze Nwakibie, who is a successful yam farmer (the general local appellation for a successful yam farmer is "*diji*"). Okonkwo's mission was to ask for a loan of seed yams to sow in his farm. In his visit, Okonkwo acknowledges that it is difficult to trust another man with yams and promised Nze Nwakibie that if given the seed yams that he will not fail. Nwakibie responds thus:

> "It pleases me to see a young man like you these days when our youth have gone so soft. Many young men come to me to ask for yams but I have refused because I know they would dump them in the earth and leave them to be choked by weeds. When I say no to them they think that I am hard-hearted. But it is not so.

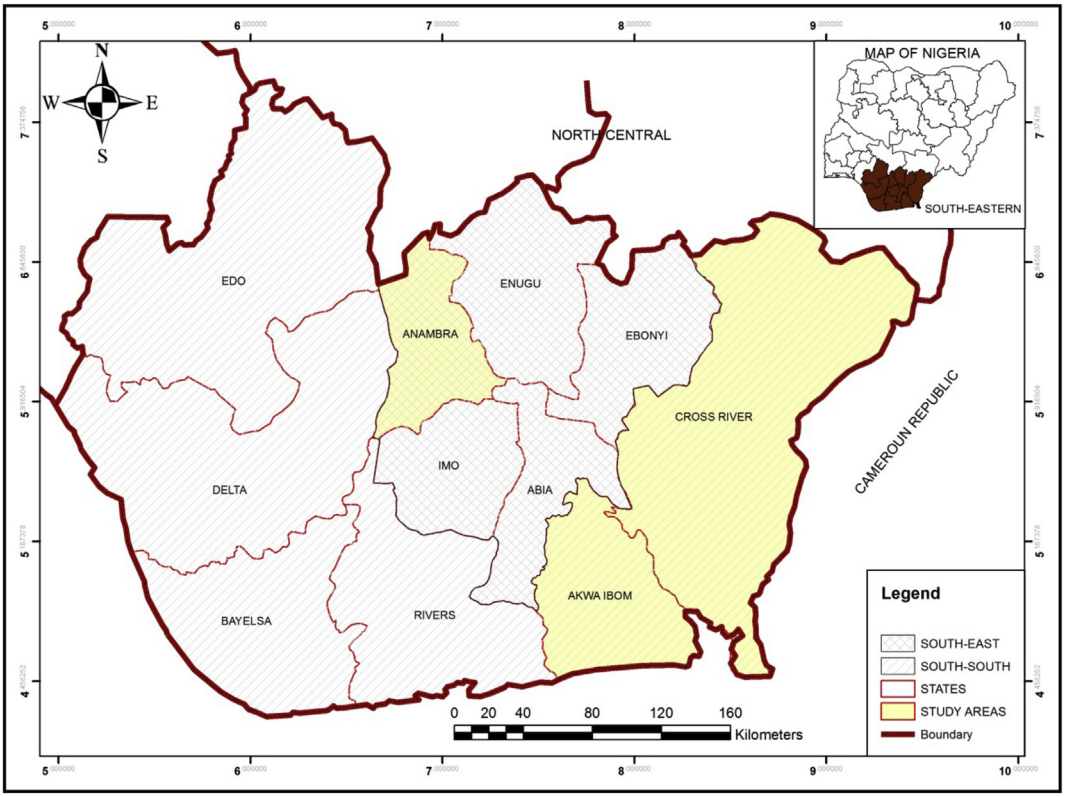

Fig. 3. Map of studied area in South Eastern Nigeria.

Eneke the bird says that since men have learnt to shoot without missing, he has learnt to fly without perching. I have learnt to be stingy with my yams. But I can trust you. I know it as I look at you. As our fathers said, you can tell a ripe corn by its look. I shall give you twice four hundred yams. Go and prepare your farm (p. 16)."

The literature has reports of several countries where yam crop has occupied the center stage of cultural festivals in different ways [5,13]. However, a coherent and cross-cultural knowledge of yam with regard to shared meanings, idioms, practices, and values is hardly documented. Knowledge of these issues could contribute to understanding the structure of social relations and shared norms and values embedded in African ancestry. The current study will address these factors through a cross-ethnic exploration of the situation in southeastern Nigeria.

2. Overview of the geography of southeastern Nigeria

For the purpose of this study, we use the term "southeastern Nigeria" to encompass the present geographical region, comprising the south-east and south-south geographical regions of Nigeria (Fig. 3). The region is home to many ethnic groups such as the Igbo, Ijaw, Ibibio, Annang, Ekoi. These ethnic groups are in the present states of Abia, Akwa Ibom, Anambra, Bayelsa, Cross River, Ebonyi, Enugu, Imo and Rivers. Southeastern Nigeria belongs to the humid tropical climate zone with high rainfall and high temperature, which give rise to two marked seasons: "dry" (i.e., November–February) and "wet" (i.e., March–October). For instance, annual rainfall can vary 2000–4000 mm, depending on location (e.g., the coastal areas could be as high as >4000 mm). However, temperatures can range between 24°C and 35°C, depending on location and season. The first rainy season [influenced by the Tropical Maritime Air Mass (mT)] begins around March and lasts to the end of July with a peak in June; this rainy season is followed by a short dry break in August, known as the "August break," which is a short dry season lasting for 2–3 weeks in August. This break is followed by another short period of rainy season lasting until October. The dry season, which commences around November, is mostly influenced by the Tropical Continental Air Mass (cT). It is locally known as the harmattan (i.e., a dry dusty wind that originates from North Africa and gathers dusts as it crosses the Sahara Desert into West Africa).

An estimated more than 80% of the total population in this region live in rural areas and are involved in semisubsistence and related activities such as trades, skill crafts, commerce, and other important livelihood occupations [26]. Agriculture and related activities are predominantly rainfed, and seasons are mostly determined by the rhythm of rainfall and temperature. Because of very low levels of education and literacy (especially among rural dwellers) and a very high incidence of endemic poverty, the general capacity of the people to improve agricultural and related practices remains extremely very low. A large proportion of the population consequently depends on tradition and knowledge of the local ecological system in driving and sustaining the local socioeconomic, agriculture, and other livelihood conditions.

Yam constitutes one of the most important crops in this region. Based on the FAO's report, Nigeria remains the leading yam-producing country in the world, and produces approximately 45 million tons, as of 2014 [12]. All ethnic groups in southeastern Nigeria share a common perception of yam as a religious, social, and cultural crop. This perception largely explains why the Annual Yam Festival is a shared cultural heritage across the region.

Beyond its cultural and religious values, yams are nutritious and beneficial to human health. A freshly harvested yam tuber contains 70% water, 25% starch, 1–2% protein and only traces of sugar and vitamins. Yam can be eaten boiled roasted; in a pounded form; or processed into yam chips, snacks, and flakes [2,27,28]. Because yam is an important cultural and religious crop, this study attempted to explore some commonalities and differences in meaning, idioms, knowledge, practices, values and associated impact of yam crops in southeastern Nigeria.

3. Study methods and limitations

We used in-depth and semistructured interviews, experiential knowledge, local narratives from traditional rulers and elders, and some observations in three villages, one each from Anambra, Akwa Ibom, and the Cross River states. The villages were conveniently focused for exploration purposes. They included Azia (from Anambra State), Nkwot (from Akwa Ibom State) and Itigidi (from Cross River State). A wide range of issues were determined and agreed on for the discussions, and included knowledge, function, myths, taboos, rituals, proverbs, idioms, and practices associated with yam and the cultivation processes, including the wider impacts of these issues. We focused on elders (i.e., individuals 50 years or older) and on the younger generations (individuals younger than 50 years old). This focus was to enable us to understand issues bordering on generational changes and the impact on perception.

We were able to successfully interview 60 respondents (at least 20 respondents from each of the states) through in-depth and semistructured interviews: 46 respondents were $\geq$50 years old and 14 respondents were <50 years old. The number of women interviewees was 22; however, the number of men interviewees dominated at 38. Interviewees were encouraged to share relevant stories and testimonies. A single interview could last on average 40–60 minutes. We equally depended on four local informants, whose roles were purely to facilitate our interaction, clarify information, and communicate with local elders and chiefs. However, our respective individual experiences and familiarity with the local customs and traditions were equally useful.

Field notes were recorded and later categorized and thematized. In addition to using local informants, several follow-up interviews were organized on mobile phones. These interviews were useful for clarifying some discrepancies and issues. All ethical matters related to anonymity, confidentiality, informed consent, and ability to withdraw from participation at any time were addressed. We also depended on a range of secondary literature to support some claims. This rather slow study was conducted for approximately 14 months.

It is important to state that three villages alone and 60 individuals may not adequately represent the large ethnic base and diversity in southeastern Nigeria. Furthermore, a range of other relevant stakeholders such as religious priests, marketers, public officials, farmers and agronomists, and urban dwellers were not interviewed. We believe these diverse groups equally hold some ideas and knowledge about yam. Because of our inability to interview these individuals, the findings in this study do not represent every segment of what is applicable about yam in southeastern Nigeria. However, a useful and potent foundation is being laid for further studies.

4. Yam and its social meaning

Yam ownership and cultivation conveys numerous social meanings with a role in defining social class/status and enhancing the attainment of traditional title ship in southeastern Nigeria: " you know how important a person is by the number of his yam

barns … these days if you go to a big man's house in the village, you would likely eat pounded yam…," explained an Ibibio man in his early 60s. Among the Igbos, the title of "*Ezeji*" (i.e., "King of yam") and the title of "*Ozọ*" are hotly competitive and coveted titles awarded to individuals with several yam barns running into hundreds of stacks: "the wife of an *Ezeji* or *Ọzọ* title holder is recognized with a title of *Lọlọ* … you can see it is not a small contest … to have a title of *Ezeji* or *Ọzọ* it means you have the ability to feed the entire community with yam for some days …," stated a local chief who appeared to be in his early 70s. They extol the importance and prestige attached to the *Ezeji* title. Among the Igbos, a common proverb reads " *ọnye ga ahapụ ebe ana echi ọzọ gawa ebe ana arụ agwụ?*", which means "who will leave an *ọzo* feast to go to a poor ritual meal?" A female respondent had this to say: " there is plenty of food and merriment."

Yam cultivation has a direct link to marriage alliances and polygamy because family ties are sustained on yam production, owing to its high demand of human labor and care [25]. It implies the existence of an intrinsic relationship between yam production capacity and family size. Men who have the capacity to enlarge family size are highly coveted and regarded as successful.

The cultivation and ownership of yam are largely associated with social status, wealth, privilege, and capability. This association is mostly related to some beliefs surrounding the origin of yam, the processes involved in its cultivation, and the multiple social and cultural values credited to it. The origin and history of yam crop reflect some myths and controversies, which vary between communities and ethnic groups. However, a common narrative links the origin of yam crop with the Supreme Being and the earth's goddess. For the Igbos, everything in the universe originates from *Chukwu* (i.e., the Great God). For the Ibibios and Efiks, it is *Abasi Ibom* (i.e., Almighty God) and *Akwa Abasi* (i.e., the Great God), respectively. Linguistic differences exist, but the central belief is that yam is freely given by the Supreme Being. The earth goddess comes next to the Great/Supreme God [29]. Within this context and belief, the cultivation and ownership of yam is linked with the custodianship of godly properties, which also has the implications of favor and blessing for those performing such a sacred duty.

The processes for cultivating and owning yam are tedious, lengthy and highly demanding spiritually and in the deployment of physical energy. It takes an average of 7 months of activity, which includes bush clearing, tillage, preparing yam setts and tubers, staking and trailing the yam vine, weeding, harvesting, carting yam tubers home, preparing yam barns, tying the tubers on barn racks, and other rituals. These procedures involve a tremendous amount of physical energy and material resources, which can only be borne by the strong, the wealthy, and the members of the community who are capable of keeping to tradition. The best set of soils that has undergone cycles of fallow are exclusively reserved for yam growing, thereby implying that enormous financial requirement is needed in land ownership or lease. Fulfilling these arduous and difficult processes automatically convey enhanced social status of privilege and wealth. The popular Igbo proverb "*diji kọrọm anaghi eke ọbaji*" in a practical sense means "it is only the farm owner of the yam plot that devotes all his energy to ensure that all cultural practices in yam cultivation are carefully and timely implemented." This also implies that "a hired labourer may not sincerely pay much attention to details because he has nothing to lose or gain in the project" (personal communication). A related proverb states "*onye ume ngwụ anaghi akọ ji,*" which implies that a lazy man cannot cultivate yam. These proverbs emphasize the imperative of hard work, effort, and meticulousness in the processes of cultivating yam. They equally underscore the values placed on yam as a food crop. No important ceremony—be it burial, traditional marriage, or thanksgiving—will be complete without involving yam as the main dish (e.g., pounded yam and *afia efere* [white soup]) and as part of important gift items.

5. The religious and educational perspectives of yam crop

The cultivation and ownership of yam do not only depend on the physical processes of planting, farm management, and harvesting of tubers. There are diverse rules, customary tradition, and religious practices that equally go with its cultivation. Every belief, custom and value attached to yam have a direct impact on its cultivation and management. Among the Ibibios, using chemical fertilizers to improve yam productivity and output is a taboo. A woman in her late 40s argued: "I think the belief used to be that the spirit linked to yam productivity will be offended, leading to poor yields [*nsobo udia*]." Yet another woman who appeared to be in her early 40s commented: well, I used to hear using fertilizer will make the yam not to taste good. She went on: "even now, very many people still do not like to use the fertilizer." A similar trend was discussed among the Igbos, although many respondents believed there could be some changes in attitudes in modern times because many yam farmers nowadays hardly depend on such beliefs.

The productivity of yam is believed to be influenced by certain spiritual forces linked with the local ancestors and the earth's goddess. For the Ibibios, any infraction of known taboos automatically translates to loss of productivity (i.e., *nsobo udia*). Among the Igbos, it is to an abomination (*arụ* or *nsọ ala*) to cultivate or consume yam before the New Year Yam Festival, and any infraction often leads to illness in the affected family or a loss in productivity. An elderly man in his late 60s observed: "this belief is no more strong, except in some rural areas who are still rigid about tradition." The status accorded to yam can best be explained by countless religious rites and traditional and spiritual routines embodied in the processes of its cultivation. We gathered the narrative of an Ibibio man (who was in his late 50s) about a certain rite that must be performed if someone accidentally falls in the course of carting yam tubers from the farm to home after harvest or vice versa: "if that happens, necessary ritual cleansing involving the sacrifice of a chicken would have to be performed before the affected set of yams are admitted for use."

Theft of yams is regarded as a more heinous crime than the theft of other goods. The same ritual procedures would be applied to restore the productivity and sanctity of yams already ransacked by thieves or polluted by the touch of individuals considered unclean or contaminated by evil spirits (e.g., mothers of twins). When a new yam is sighted in the yam field, a person quickly reacts by covering the tubers with soil to avoid another eye seeing the near-abominable act [30]. By contrast, the unearthing and theft of seed yams is seen as the ultimate rape of Mother Earth or as an abomination against the yam deity, *Ahiajọkụ* (called *Nsọ ala* among the Igbos). This could be likened to digging up a buried relative. A female respondent in her late 60s said, "it is believed that this results to the proliferation of premature birth, stillbirth, and infant death."

The Annual Yam Festival is an enduring staple in the process of yam cultivation. A Yam Festival assumes different variances, depending on the specific community or the ethnic group. It could be a family ritual, a community event, or an elaborate annual tradition of an entire ethnic group. The Ibibios call the New Yam Festival *usuuk udia*, *usoro ndem udia*; the Igbos call it *iri ji ọhụrụ*; and the Efiks have different names, depending on the individual community, but all of their names for the New Yam Festival translate to *usoro obufa udia*. These festivals are designated as special events to thank and show appreciation to the ancestors and deities and to formally mark and declare open the harvesting and consumption of yam for that year. New yam festivals involve some religious

activities (e.g., sacrifices at shrines and libation pouring); cultural activities such as songs and dances (to express happiness and appreciation to the ancestors and the gods); and other events. Surplus yam foods, pounded yam (called *usun udia* among the Ibibios and *utara ji* among the Igbos) are showcased while people eat to their satisfaction. An Igbo elder in his 70s explained thus: "bringing in new yams which have been harvested in another community prior to the celebration of New Yam Festival—*iri ji ọhụrụ*—was also abominable and requires earthly cleansing." This scenario was depicted in Achebe's novel *Arrow of God* when the protagonist, Ezeulu, who is the chief priest of Ulu (an Igbo community) was imprisoned by the British colonialists [31]. During his imprisonment, Ezeulu could not eat the sacred yams or announce the new moons. As chief priest of Ulu, he was the custodian of the timetable of community events. As a demonstration of anger to his people for letting the British detain him, Ezeulu stubbornly moved the New Yam Festival forward by 2 months by refusing to announce the feast at the expected time. For that reason, the new yams could not be harvested and they rotted in the fields thereby causing famine.

The embrace of Christianity across the region has slightly altered the shape and pattern of the modern-day yam festival, although the elaborate community-wide yam festival is sustained among the Efiks, the Igbos and the Ibibios. The people conduct their yam festivals in the context of the family and religious settings (e.g., through Church Harvest and Thanksgiving services). Notwithstanding this variation, we were informed that those with traditional titles hardly avoid the necessary rituals associated with yam cultivation. An elderly (in his late 60s) Igbo man said that on the main yam harvesting day, it was a common practice for each adult to present two big tubers from his farm to the shrine center for sacrifice. According to this interviewee, "with the emergence of Christianity, new yam harvesting ceremony has been modified to accommodate the Christian faith … in every town, a community has a government-appointed traditional leader [called an *Igwe* or *Obi*] … who along with his cabinet members is responsible for determining the appropriate date for celebrating each New Year's Yam Festival … which involves sacrifices, worship, prayers, and presentation of new yams." The symbolic philosophy of the New Yam Festival is that it allows communities to thrive in the provision of food supplies and victory over starvation [30]; conservation of the better forms of yam food against extinction or predation, thereby providing the basis for ennoblement [32]; nurturing unity; and strengthening kinship relationship [33].

6. Yam, social status, ownership rights and gender relations

The processes for cultivating yam and the rights associated with ownership, use, and disposal in southeastern Nigeria are governed by the daily practices of social relations of power, which manifests in social status and in gender divisions of labor and basic entitlements. Nwapa's 1975 derogatory comments on the cassava crop (*Manihot esculenta*) in relation to yam remain fundamentally relevant in understanding the aspects of social and gender power relations framed around two crops in southeastern Nigeria. Nwapa's comments were as follows: "the cassava tuber is accessible to both the rich and the poor in many parts of Nigeria and Africa. Cassava is planted by women, unlike yam, the king of all crops that is planted by men." [34]

Yam cultivation is an important element of the traditional and social aspects of economic activities dominated by males. An adult male without a good quantity of yam reserved in his barn is derogatorily regarded as worthless and as an "*ofeke*" among the Igbos. An Igbo adage states that "only when we have worked like men can we hope for a proper harvest and for a stock of yams with which to celebrate *ahiajọku*." The earlier discussion on the relationship between yam ownership and social status and traditional "titleship" demonstrates that men are more privileged than women. The process for cultivating yam crop is characterized by strict and traditional gender division of labor where men and women are distinctly assigned traditional roles. All activities involving bush clearing, tillage operation, preparation of yam setts and tubers, staking and trailing the yam vine, harvesting, preparation of yam barns, tying the tubers on the barn are traditionally reserved for men, whereas women are restricted to weeding, carting yam tubers from the farm site to homestead yam barns, cooking, and food processing. Some activity elements may be mutually exclusive for men or women, but other activities can be shared, as noted by an Ibibio female respondent (in her late 50s): "a woman can help in bush clearing as a man can also help in, for example, carting yam tubers … but there are certain elements that should be handled by men, for example, soil tillage, preparation of yam setts, staking, vine trailing and preparation of yam barns etc.… the man cannot be expected to be doing the weeding or cooking and preparing pounded yam."

The key features in the processes of cultivating yam, and which seem to exclusively fall in the domain of the male gender are (1) its energy-demanding activities (i.e., tillage); (2) its complex set-up (i.e., preparation of barns); and (3) the necessity for certain ritual fulfillments. Fulfilling these necessary requirements qualifies a man for blessing and favor, and for credits of achievements and manliness. Surviving the processes and rituals of cultivation and ownership retention is a very important traditional responsibility for the men. An elderly man in his late 60s argued: "there had also been a common belief in Igboland that every man who successfully passes through all the rigorous physical, religious and cultural fulfillments of yam production and live to harvest it, had received a special favour and blessing from their ancestors and deity … recipients of such favour and blessings are expected to show appreciation and thanksgiving to the gods for the gift of life…" A contrasting scenario to the above features is captured in the view of an Igbo female respondent (older than 60 years): " women did not have the privilege of moving into the storage yam barn to collect yams for food preparation. Such privilege was arrogated to their husbands or fathers who were regarded as the chief custodians of the yam barn."

The collection of yam tubers from the barn is not physically demanding. We hold the view that some social responsibility to yam culture is enshrined in societal tradition. Among the Igbos, a husband under the supervision of his kinsmen and extended family will give a fine to a married woman who is found guilty of any yam-related norm. A male interviewee had this to say: "in extreme cases, act of this nature could lead to temporary suspension of marriage or stoppage of personal communication and intimacy for a specific period of time."

An Igbo male respondent said, "a man cultivating cocoyam [taro or tannia] is considered a 'woman-man' which constitutes an *arụ* or *nsọ ala* abomination." Another male respondent expressed, "activities associated with cassava and cocoyams are performed within family units, while yam is publicly entrusted with economic, political and religious activities operating at the community level." These views thus cement the fact that men are consciously sustaining dominance using the instrumentality of religious and customary authorities, based on the yam crop.

7. Summary of findings and concluding remarks

Despite linguistic and slight cultural differences, the Igbos, Ibibios, and the Efiks all sustain similar idioms, beliefs, social values,

Table 2
Comparative perspectives on yam cropping in Nigeria.

	Ibibio (Akwa Ibom State)	Efik (Cross River State)	Igbo (Anambra State)
Gender perspectives	- Yam is predominantly a "male" crop - Farming tasks are divided by gender: for men it encompasses bush clearing, ground preparation, rituals, seed selection and deposition, staking, trailing, harvesting, barn preparation and storage; for women it encompasses covering yam seedlings, weeding, conveying tubers for storage, and cooking - These are the traditional division of labor between the sexes	Same practices	Same practices
Economic value	- Mostly subsistent with less commercial interest	- Subsistent and commercial	
Religious values	- Ritual ceremonies before cultivation and harvesting *(usoro ndem udia, usoro obufa udia*)	- New Yam Festival (*Usoro obufa udia)*	
Symbolic value	- Enhances the social status of men - Ownership symbolizes wealth	- Enhances the social status of men - Ownership symbolizes wealth	- Enhances the social status of men (e.g., certain traditional titles) - Ownership symbolizes wealth
Mode of cultivation	- Manual - Small-scale and family-centered - Large-scale cultivation creates the need for polygamous relationship as a means to support labor	- Manual - Small-scale and family-centered - Large-scale cultivation creates the need for polygamous relationships as a means to support labor	- Manual - Small-scale and family-centered - Large-scale cultivation creates the need for polygamous relationships as a means to support labor
Access and ownership rights	- Men enjoy absolute access and ownership rights, whereas women's rights of access are at the will of their husbands	Same practices	Same practices

and religious practices associated with yam ownership and cultivation (Table 2).

Shared practices and beliefs largely serve to sustain the argument of a common ancestry of the people. Literature variously records that the ethnic groups in southeastern Nigeria have coexisted with each other over ages, thus indicating a common origin and migration from Israel [35,36]. Yam, being a tropical and West African staple crop, may have found its way into the region through interactional exchanges and trade relations with other racial groups in Nigeria and other West African countries. Yam has important traditional and social functions, and has been useful in supporting the sociocultural and economic infrastructures of livelihoods. The context of yearly yam festivals represent an important platform for worshipping and for strengthening relations with local ancestors as a way of guaranteeing the productivity of yam. The religious values accorded to yam and its cultivation processes traditionally conform with and reinforce the prevailing social relations among people. Similar notions and practices have been reported in other West African countries [4,5,23].

In 2007, Korieh wrote "Yam is king! But cassava is the mother of all crops" [4], which provides the theoretical basis for understanding the position and relative importance of yam crop in the hierarchy of other crops; it also sheds light on the perspective on gender relations. The right to ownership and cultivation of yam crop is already patterned, based on gender, in line with the patriarchal order of social relations in African societies. Discourses emphasizing masculine physical strength, domination, control and exclusive rights as the spiritual and traditional heads in families and the larger society were emphasized in most narratives during the interviews. Privileging men over women in social, religious, traditional and economic relations form the basis for the social division of labor, and for the traditional assignment of roles and responsibilities in certain aspects in the processes of yam cultivation. Exclusive ownership claims for men are nonnegotiable (Table 2), although tasks within the female domain can be handled by men without the fear of traditional implications. Similar observations have been reported in south-central Cameroun [37]. The implication of these practices on the economic productivity and food security is wide-ranging. Yam has served more as a cultural, religious, and social symbol that is nested in excessive taboos, myths, beliefs, traditions and customs, which hardly lends itself to modern and commercial cultivation. In southeastern Nigeria, yam is dominantly cultivated in rural areas, and still characterized by traditional and subsistent agriculture. The prospects of opening up the crop to commercial and mechanized farming remain poor because of the low socioeconomic characteristics of the people.

Evidence indicates that these notions and practices are fast changing in line with changes in societal values brought about by modern development and the impact of Christianity. Yam-based religious and cultural practices have been relegated to the realm of privacy, while some elements have been transformed in line with modern values of Christianity and socioeconomic development. Families in rural areas still maintain some elements of such traditional practices. As one respondent (an Ibibio in his late 60s) argued: *"kutimede adanga eset"* (translated as "do not disrupt the traditional boundaries"). The point of argument was that some families still retain the customs and traditions of their ancestors. For instance, annual yam festivals are mostly organized at the family level, especially for individuals who still maintain several barns of yam in line with tradition. Traditional rulers and the title chiefs still retain the traditional responsibility by observing the necessary rituals associated with yam. This fact was equally discussed among the Igbos, while the Efiks still maintain their elaborate Annual Yam Festival.

The biggest transformation in the notions and practices associated with yam cultivation has been mediated by the influence of Christianity. Annual Church Harvest and Thanksgiving ceremonies in urban and rural areas feature the presentation of farm crops and other commodities, including money. At such ceremonies, men are likely to present yams and live animals, while women present other crops such as cassava products and vegetables. This is an example in which the cultural tradition has been adapted to modern development. Where changes in attitudes are recorded, there may be some likely improvements in the socioeconomic characteristics

through education and knowledge of best practices. Given that yam is still exclusively cultivated in the rural areas, our study demonstrates that expected changes in attitudes may be insignificant. This is so because rural areas in southeastern Nigeria remain challenged by poor social and physical infrastructures, which hinder the inhabitants' ability to effectively make the needed changes.

In conclusion, this study has demonstrated the importance and functions of yam crop in structuring the social, economic, religious, and cultural fabric of a society. Yam still represents an important food crop, much more than other crops, for the people in southeastern Nigeria, while the processes of its cultivation and ownership throw much insight on issues of shared ancestry and cultural tradition. This ethnological study of traditional concepts and practices relating to yam cultivation will add to the understanding of the historical development of production systems while serving as a guide towards future development. This offers a useful window of opportunity for tracing and understanding the history of the people. However, one of the greatest consequences of treating yam as a cultural and religious crop is that it hinders its mechanization. It is noteworthy to mention that yam domestication has a two-pronged influence because man was equally domesticated by its production, which led to diverse food production systems. Exploring these systems through a cognitive and conceptual approach within the context of culture will be valuable.

8. Conflict of interest

The authors declare that there is no conflict of interest.

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